

(Translation of Reference 1)
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Inventor(s): Y. Nakajima
Applicant: Mitsubishi Electric Ltd.
Title of Invention: Program Reservation Device

---(not translated)---

Next, operation of the construction will be explained.

For example, when a reservation picture display button (108) of a remote control device (107) was pushed, a colored selection region (15) of a matrix shape as shown in Fig. 3 is displayed on picture (101) of a television receiver (2).

In the initial condition of the picture (101), the region (150a) of the channel "1" from 5:00 a.m. to 5:15 a.m. within the minimum unit frame is blinked in red. This acts as a cursor. When a user finds a program channel number and a time slot of a program which the user wants to reserve recording while the user reads a television and radio program table of a newspaper, a magazine or etc. and the user, for example, wants to reserve the time slot from 6:00 to 6:30 of the channel number "4", the user operates a channel number selection key (13) to move the cursor to the column "4" on the picture (101). Next, by also operating the time frame selection key (16) to move the cursor in the vertical direction by the 15-minute frame at once until the cursor reaches the frame from 6:00 to 6:15. When the memory key (14) is pushed, the blinking is stopped and red is continuously displayed. Next, when the time frame selection key (16) is pressed, the cursor (150a) blinking in red moves to the frame from 6:15 to 6:30. The blinking is stopped by pushing the memory key (16) and the region (150c) from 6:00 to 6:30 of the channel number "4" is tuned to continuous read as shown in Fig. 2 (150c) and the program reservation is completed.

Although the program is reserved on the picture by the operation so far, the control device is not yet explained. Since RAM (7) is provided for the regions of the matrix shape, the memory location of the RAM (7) corresponding to the region (150c) fixed to red becomes for example the logical level "H". The start time and the end time between which the information of the memory (7) is in the "H" level can be read out from a table of ROM (6).

---(not translated)---

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : MITSUBISHI ELECTRIC CORP.

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(72)Inventor : NAKAJIMA YOSHIRO

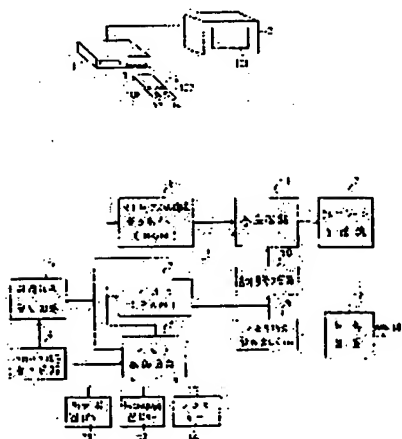
(54) PROGRAM RESERVATION DEVICE

(57)Abstract:

PURPOSE: To simply reserve a program by screening a matrix form colored selection area consisting of a channel frame and a time frame on the screen of a television receiver, and changing the color of the desired area, at the same time, reading program reservation information in a memory corresponding to the area when the area is designated.

CONSTITUTION: When the reserved picture display button 108 of a remote control device 107 is pressed, the matrix form colored selection area 15 is displayed on the picture 101 of the television receiver 2. Since, a RAM7 is disposed corresponding to the respective matrix form areas 15, every time when a memory key 14 is pressed, the memory 7 corresponding to the area 150c fixed to red goes to an 'H' in a logical level, for instance. Namely, from what time to what time the information of the memory 7 goes to the 'H' level can be read by preparing a table of a corresponding ROM6

and referring to it.



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拒絶理由通知書

特許出願の番号	特願 2003-332113
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特許庁審査官	古川 哲也 9746 5C00
特許出願人代理人	中村 稔 (外 5名) 様
適用条文	第29条第2項、第36条

この出願は、次の理由によって拒絶をすべきものである。これについて意見があれば、この通知書の発送の日から3か月以内に意見書を提出して下さい。

理 由

1. この出願は、特許請求の範囲の記載が下記の点で、特許法第36条第5項第2号及び第6項に規定する要件を満たしていない。

記

(1) 請求項1及び3には、それぞれに「選択された一つのテレビジョン番組リストに関する番組情報」という記載があるが、該記載における「番組情報」が、選択された「テレビジョン番組リスト」に関する如何なる情報を表すものであるのかが技術的に不明瞭である。

(2) 請求項2、4には、それぞれ「番組ノート形式で前記の番組情報を表示する」という記載があるが、該請求項の記載からだけでは、「番組ノート形式」という用語が如何なるものを意味する用語であるのかが不明であり、該請求項の記載からだけでは、「番組情報」を如何にして表示するのかが技術的に正確に理解できない。

したがって、請求項1-4の記載からまとまりのある一の技術思想を把握することができない。

2. この出願の下記の請求項に係る発明は、その出願前日本国内又は外国において頒布された下記の刊行物に記載された発明に基いて、その出願前にその発明の属する技術の分野における通常の知識を有する者が容易に発明をすることができたものであるから、特許法第29条第2項の規定により特許を受けることができない。

(引用文献等については引用文献等一覧参照)

備考：

また、請求項 2, 4 に関しても、引用文献 1 及び 2 に記載のものから当業者が容易に想到し得ることである。

2. 特開平1-276977号公報

この先行技術文献調査結果の記録は、拒絶理由を構成するものではない。

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この拒絶理由通知の内容に関するお問い合わせがございましたら、下記までご連絡下さい。

特許審査第四部 映像機器

古川 哲也

TEL. 03 (3581) 1101 内線3541

Ref. 2

⑨ 日本国特許庁(JP)

⑩ 特許出願公開

⑫ 公開特許公報(A)

昭63-54884

⑤ Int. Cl.⁴

識別記号

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⑬ 公開 昭和63年(1988)3月9日

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D-6957-5C
Z-8022-5D

審査請求 未請求 発明の数 1 (全5頁)

⑭ 発明の名称 番組予約装置

⑮ 特 願 昭61-199717

⑯ 出 願 昭61(1986)8月25日

⑰ 発 明 者 中 島 義 郎 京都府長岡京市馬場岡所1番地 三菱電機株式会社電子商品開発研究所内
 ⑱ 出 願 人 三菱電機株式会社 東京都千代田区丸の内2丁目2番3号
 ⑲ 代 理 人 弁理士 大岩 増雄 外2名

明 細 書

1. 発明の名称

番組予約装置

2. 特許請求の範囲

(1) 装置本体に接続されたテレビジョン受像機の画面に、少なくともチャンネル番号枠と時刻枠とからなるマトリックス状の着色選択領域を映出させるためのマトリックス状領域発生用のメモリと、上記マトリックス状の各領域にそれぞれ対応して設けられて番組予約情報が書き込まれた番組予約情報記憶用メモリと、上記着色選択領域のうちの所望領域が指定された際、この領域を着色表示させるとともに、この着色領域に対応するメモリの内容を読み出させる制御手段とを具備したことを特徴とする番組予約装置。

3. 発明の詳細な説明

〔産業上の利用分野〕

この発明は、たとえば録画再生装置(以下、VTRと称す)等のオーディオ・ビジュアル機器に適用される番組予約装置に関するものである。

〔従来の技術〕

第4図は、たとえば三菱電機株式会社製のVTRの取扱説明書に示された従来のこの種装置による表示画面表示例を示す図、第5図は同装置に使用されるリモートコントロール装置の平面図である。第4図において、(101)はテレビジョン受像機の画面、(102)は画面表示された文字等のうちの予約番号表示、(103)はチャンネル表示、(104)は曜日表示、(105)は録画開始時刻表示、(106)は録画終了時刻表示である。第5図において、(107)はリモートコントロール装置、(108)は予約画面表示ボタン、(109)は予約番号ボタン、(110)は選択ボタン、(111)は合せボタン、(112a)、(112b)は録画予約入/切ボタンである。

次に動作について説明する。

リモートコントロール装置(107)の予約画面表示ボタン(108)を押すと、第4図に示すようにVTRに接続されたテレビジョン受像機の画面(101)に文字等が表示される。すでに予約済みの予約番号の行はチャンネル番号、曜日、録画開始時刻および

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録画終了時刻が特定されているが、まだ未予約の予約番号の行は「ー」(横棒)表示がされている。

このような状態で、まず、リモートコントロール装置(107)の予約番号ボタン(109)を押して、予約番号表示(102)の表示の点滅している番号をこれから予約したい予約番号にあわせる。第4図の例のようにまだ予約されないで空いている予約番号「5番」にもつてきてよいし、すでに予約済みの予約番号でもその内容を変更したい場合は、たとえば予約番号「1番」を点滅させるように予約番号ボタン(109)を押す。次に選択ボタン(110)を押すと、希望する予約番号の点滅はとまり、表示の点滅は右どなりの希望する予約番号の行のチャンネル番号(108)に移る。そこで合せボタン(111)を押すと、チャンネル番号が1つずつ変わっていくから、希望するチャンネル番号になつたとき合せボタン(111)を押すのを止める。

次に選択ボタン(110)を押すと、表示の点滅は右どなりの希望する予約番号の行の曜日表示(104)に移る。そこで、合せボタン(111)を押すと、まず、

を繰り返す。このように設定しておくことにより現在時刻と設定時刻の比較をおこなつてその設定時刻になれば、その設定チャンネルの番組の録画や録音が始まる。

〔発明が解決しようとする問題点〕

従来の番組予約装置は以上のように構成されているので、予約番号、チャンネル番号、曜日、録画開始時刻、録画終了時刻をそれぞれ順番に設定してゆかねばならない手順のわずらわしさや誤設定のおそれがあり、慣れていない人には扱い難いという問題点があつた。

この発明は上記のような問題点を解消するためになされたもので、複雑な操作手順を憶えなくても簡単に録画予約できる番組予約装置を得ることを目的とする。

〔問題点を解決するための手段〕

この発明に係る番組予約装置は、装置本体に接続されたテレビジョン受像機の画面に、少なくともチャンネル番号枠と時刻枠とからなるマトリックス状の着色選択領域を映出させるためのマトリ

ック状領域発生用の読み出し専用メモリと、上記マトリックス状の各領域ごとに対応して設けられて番組予約情報が書き込まれたメモリと、上記着色選択領域のうちの所望領域が指定された際、この領域を着色表示させるとともに、この着色領域に対応するメモリ内容を読み出させる制御手段とを設けたものである。

曜日および録画開始時刻が現在時刻に変わる。そのあと合せボタン(111)を押すと、曜日が順に変わってゆくから希望する曜日になつたとき合せボタン(111)を押すのをやめる。次に選択ボタン(110)を押すと、表示の点滅は右どなりの同じ希望する予約番号の行の録画開始時刻表示の“時”の位(くらい)に移るので、合せボタン(111)を押して開始時刻の“時”の位を設定する。次に選択ボタン(110)を押すと、となりの“10分”の位に点滅が移るから合せボタン(111)を押して開始時刻の“10分”の位を設定する。次に選択ボタン(110)を押すと、点滅はとなりの“分”の位に移るから合せボタン(111)を押して“分”の位を設定する。以下同様にして選択ボタン(110)、合せボタン(111)を交互に押して希望する録画終了時刻を設定する。予約したい番組がこれだけのときは録画予約入/切ボタン(112a)、(112b)を押すと、予約が受けつけられ番号予約が終了する。

もし複数番組予約したいときは、予約番号ボタン(109)、選択ボタン(110)合せボタン(111)の操作

〔作用〕

この発明においては、マトリックス状の着色選択領域のうちから番組予約したい領域をライトペンやカーソルで指示すれば、その領域が着色して予約したことが一目でわかるうえ、着色領域に対応するメモリから番組予約情報が自動的に読み出されるため、番組予約のための操作が極めて簡単なものとなる。

〔発明の実施例〕

以下、この発明の実施例を図面にしたがって説明する。

第1図はこの発明に係る番組予約装置の一例を示す全体図である。同図において、(1)はVTRの

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ような装置本体、(2)は装置本体(1)に接続されたテレビジョン受像機、(3)は装置本体(1)に設けられたリモートコントロール装置(107)の収納口である。

第2図は同装置の要部のブロック図である。同図において、(4)はクロック信号発生回路、(5)は同期信号発生回路、(6)は後述するマトリックス状の着色選択領域を発生する読み出し専用メモリ(以下、ROMと称する)、(7)は上記マトリックス状の各領域に対応する番組予約情報を書き込まれたメモリ(以下、RAMと称する)、(8)はメモリ制御回路、(9)は上記メモリ(7)に接続されたメモリ内容読み出しバッファ、00は上記バッファ(9)に接続された色信号発生回路、01は上記メモリ(8)および色信号発生回路00に接続された合成回路である。02はマイクロコンピュータのような制御装置であり、メモリ内容の読み込み、解説、録画開始および終了等の制御信号を出力するものである。また、03はチャンネル番号選択キー、04はメモリキー、05は時刻枠選択キーであり、それぞれメモリ制御回路(8)に接続されている。

表を見ながら予約録画を希望する番組のチャンネル番号およびその放送時間を読みとり、たとえばチャンネル番号「4」の6時00分から6時80分までの時間帯を予約したい場合、チャンネル番号枠選択キー03を操作してカーソル(150a)をチャンネル番号「4」の列まで移動させる。次に同様に時刻枠選択キー05を操作してカーソル(150a)を縦方向に15分の枠毎に1つずつ移動させてゆき、まず6時00分から6時15分の枠内まで至れば移動を止め、メモリキー04を押すことにより、この点滅が止まり赤色となる。次に時刻枠選択キー05を押すと、赤色の点滅するカーソル(150a)は6時15分から6時80分の枠内に移動するので、ここでまたメモリキー04を押すことによりこの点滅がとまり、第2図(150c)に示すようにチャンネル番号「4」の6時00分から6時80分までの領域(150c)が赤色になり、番組予約が完了する。

ところで、ここまでの操作であれば、画面(101)上では番組が予約されているが、まだ機器の制御装置として動作しない。ところが、上記マトリッ

上記テレビジョン受像機(2)の画面(101)には、上記ROM(6)により、第3図に示すように横軸方向のチャンネル番号枠、すなわちプリセット可能なチャンネル数と同数の1~12までのチャンネル番号枠(15a)と縦軸方向の時刻枠、たとえば毎整時毎の枠(15b)とからなるマトリックス状の着色選択領域09が映出されるようになっていいる。この例では毎整時の枠(15b)はさらに15分毎の枠(150b)に細分割されている。

つぎに、上記構成の動作について説明する。

たとえば、リモートコントロール装置(107)の予約画面表示ボタン(108)を押すと、テレビジョン受像機(2)の画面(101)には第3図のようなマトリックス状の着色選択領域09が表示される。

上記画面(101)の初期状態においては、最小単位枠内のたとえばチャンネル「1」あさの5時00分から5時15分までの領域(150a)が、たとえば赤色になっており、かつ点滅している。これがカーソルの役目を果たす。このように作られた画面(101)上で、新聞や雑誌等のテレビ・ラジオ番組

クス状の各領域09に対応してRAM(7)が設けられているため、上記メモリキー04を押すごとに、赤色に固定された領域(150c)に対応するメモリ(7)が、たとえば論理レベル“H”となる。すなわち、この“H”レベルになっているメモリ(7)の情報が何時何分から何時何分までであるかは、対応するROM(リードオンリーメモリ：読み出し専用メモリ)(6)のテーブルを用意しておき、それを参照することによつて読み出すことができる。

なお、上記実施例では、着色選択領域09の位置指定をするのに画面上(101)をカーソル(150a)を上、下、左、右方向へ移動させて指定するものを示したが、カーソルの代りにライトペンによつて位置指定するようにすれば、さらに操作を簡便化できる。

また、この実施例では全チャンネル番号と朝から晩までの番組がすべて一枚のテレビ画面(101)に表示されるようにしたものであるが、たとえば朝、昼、晩と分けて映出させるようにしてもよい。

また、上記の例では、曜日、1週目、2週目、

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毎日などの区別は示さなかつたが、これらについても同様の枠を設けて、その希望する領域の表示色を変えるようにして指定すれば、チャンネル番号および時刻の設定と全く同じように行える。

【発明の効果】

以上のようにこの発明によれば、装置本体に接続されたテレビジョン受像機の画面に少なくともチャンネル番号枠と時刻枠とからなるマトリックス状の着色選択領域を映出し、希望する領域を指示すれば、その領域の色が変わると同時に、この領域に対応するメモリにおける番組予約情報が読み出されるようにしたから、従来のような煩しい操作手順を憶えなくても簡単に番組予約を行なうことができる。

4. 図面の簡単な説明

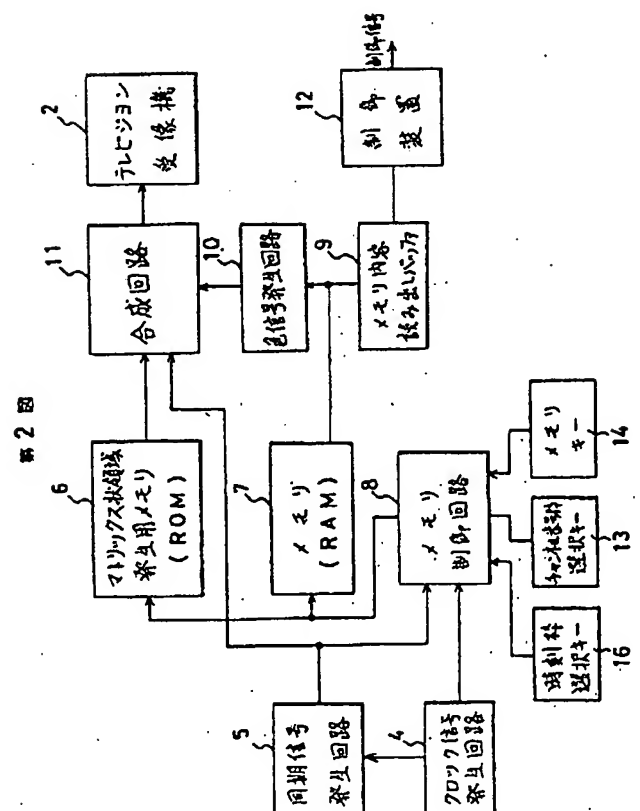
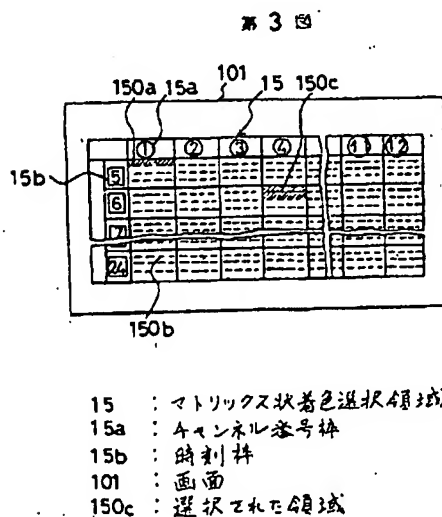
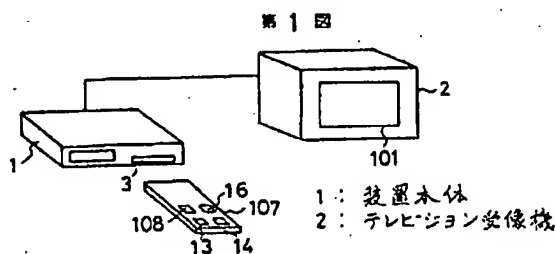
第1図はこの発明に係る番組予約装置の一例を示す全体図、第2図は同装置の要部のブロック図、第3図は同番組予約装置に用いられるテレビジョン受像機の画面表示例を示す図、第4図は従来の番組予約装置のテレビジョン受像機の画面表示例

を示す図、第5図は従来のものに使用されるリモートコントロール装置の平面図である。

(1)…装置本体、(2)…テレビジョン受像機、(3)…マトリックス状の着色選択領域発生用のメモリ、(7)…番組予約情報記憶メモリ、(10)…制御手段、(10a)…マトリックス状の着色選択領域、(15a)…チャンネル番号枠、(15b)…時刻枠、(101)…画面、(150c)…選択された領域。

なお、図中、同一符号は同一もしくは相当部分を示す。

代理人 大 岩 増 雄



手 続 補 正 書 (自 発)

特許庁長官殿

1. 事件の表示

特願昭⁶ 1 - 1 9 9 7 1 7 号

2. 発明の名称

組 予 約 裝 置

3. 補正をする者

事件との関係 特許出願人

住 所 東京都千代田区丸の内二丁目2番3号

名称 (601) 三菱電機株式会社

代表者 片山 志岐 守哉

4. 代理人

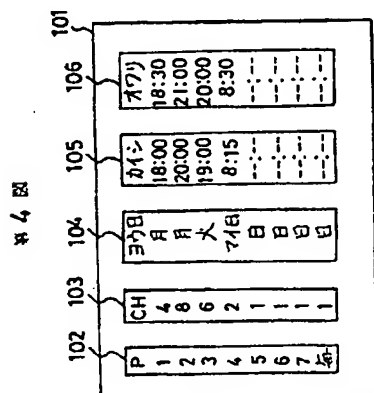
住所

東京都千代田区丸の内二丁目2番3号

三菱電機株式会社内

氏 名 (7375) 弁理士 大 岩 増 雄

(連絡先03(213)3421特許部)



5. 補正の対象

明細書の「発明の詳細な説明」の欄

6. 補正の内容

(1) 明細書をつぎのとおり訂正する。

ページ	行	訂 正 前	訂 正 後
8	4	と同数の1～12までの	と同数の、たとえば 1～12までの (以 上)

【公報種別】特許法第17条の2の規定による補正の掲載

【部門区分】第7部門第3区分

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特許庁長官殿

1. 事件の表示 特願昭61-199717号
2. 発明の名称 番組予約装置
3. 補正をする者
事件との関係 特許出願人
住 所 東京都千代田区丸の内二丁目2番3号
名 称 (601) 三菱電機株式会社
代表者 北 岡 隆
4. 代理人
住 所 東京都千代田区丸の内二丁目2番3号
三菱電機株式会社内
氏 名 (8217) 弁護士 高 田 守
(連絡先 03(3213) 知的財産権本部)

5. 補正の対象

明細書の「特許請求の範囲」の欄

6. 補正の内容

A. 明細書:

(1) 特許請求の範囲を別紙の通り補正します。

以上

別 紙

補正後の特許請求の範囲

「(1) 録画再生装置に接続されたテレビジョン受像機の画面に、少なくともチャンネル番号枠と時刻枠とからなるマトリックス状の着色選択領域を映出させるためのマトリックス状領域発生用のメモリと、上記マトリックス状の各領域に対応して上記着色選択領域のうちの所望番組領域が指定された際、その領域を別の色に着色表示する手段と、その領域が予約されたことを示す情報を書き込む番組予約情報記憶用メモリと、マトリックス状の各領域がどのチャンネル、時刻であるかを記憶させたメモリとを具備した録画再生装置の番組予約装置。

以上

English Translation of Kokai patent application 63-54884

1. TITLE OF THE INVENTION

PROGRAM RESERVATION DEVICE

2. CLAIM

1. A program reservation device for an image reproducing apparatus comprising:

a memory for generating a matrix form area in order to display a matrix form colored selection area consisting of at least a channel number frame and a time frame on a screen of a TV receiver connected to the image reproducing apparatus; means for displaying a designated area in different color, when a desired program area is designated from among said colored selection area, corresponding to each of said matrix form area;

a memory for storing program reservation information, in which information indicating that the area has been reserved is to be written; and

a memory for storing information concerning channel and time which each of the matrix form area represents.

3. DETAILED DESCRIPTION OF THE INVENTION

[Field of the Invention]

The present invention relates to a program reservation device to be used in an audio-visual equipment, such as a videotape recorder (hereinafter referred to as VTR).

[Description of Prior Art]

Fig. 4 is an exemplary screen display with a conventional program reservation device as shown in the instruction manual, for example, of a VTR manufactured by Mitsubishi Electric Co. Fig. 5 is a plan view showing a remote control device used with the apparatus. In Fig. 4, (101) is a screen of a TV receiver, (102) is a reservation number display among the characters and the like of the displayed screen view, (103) is a channel number display, (104) is a day-of-the-week display, (105) is a display of the recording start time, and (106) is a display of recording end time. In Fig. 5, (107) is t

he remote control device, (108) is a reservation screen view display button, (109) is a reservation number button, (110) is a selection button, (111) is a setting button, and (112a), (112b) are recording reservation on/off buttons.

Next, operation of the conventional reservation device will be described.

When the reservation screen view display button (108) of the remote control device (107) is depressed, characters and the like are displayed on the screen (101) of the TV receiver connected to the VTR, as shown in Fig. 4. In the line of the reservation number where reservation has been already registered, the channel number, the day-of-the-week, the recording start time and recording end time are specified. In lines where reservation has not yet been registered, only "-" (bar) marks are shown.

In this state, the reservation number button (109) of the remote control device (107) is then depressed, so as to set the number displayed in blinking in the reservation number display (102) to the reservation number that is desired to be reserved. "The number 5" that is left unreserved as shown in the example of Fig. 4 may be used as the reservation number. Alternatively, the reservation number that has been already reserved may be used by changing the content of the reservation. In this case, the reservation number button (109) is depressed so as to display the reservation number "1" in blinking. Then, the selection button (110) is depressed to stop the blinking of the desired reservation number, whereupon the blinking shifts to the channel number display (108) that is immediately to the right of the desired reservation number in the same line. Then, the setting button (111) is repeatedly depressed to change the displayed channel number by one successively until the desired channel number is displayed, whereupon depression of the setting button (111) is stopped.

Then, the selection button (110) is depressed to shift the blinking to the day-of-the-week display (104) in the same line as the desired reservation number. When the setting button (111) is depressed, the day-of-the-week and the recording start time are changed to current time. The displayed day-of-the-week is changed successively by depressing repeat

edly the setting button (111). When the desired day-of-the-week is displayed, depression of the setting button (111) is stopped. Then, the selection button (110) is depressed to shift the blinking to the position of "hour" of the recording start time display in the same line as the desired reservation number. Then, the desired "hour" is set by depressing the setting button (111), as before. When the selection button (110) is depressed, the blinking is shifted to the position of "10 minutes". The desired number of "10 minutes" is set by depressing the setting button (111) repeatedly. When the selection button (110) is depressed, the blinking is shifted to the position of "minutes". The desired number of "minutes" is set by depressing the setting button (111) repeatedly. Similarly in the afterward, the desired recording end time is set by depressing the selection button (110) and the setting button (111) alternately. If there is no more program that is desired to be reserved for recording, the recording reservation on/off button (112a), (112b) is depressed, whereupon the reservation is accepted and reservation operation is completed.

If a plurality of programs are desired to be reserved for recording, operation of the reservation number button (109), the selection button (110), and the setting button (111) is repeated. By setting in this manner, comparison is made between current time and the set time, and when the two coincide, recording of the program of the set channel is automatically started.

[Problems to be solved by the Invention]

Since the conventional program reservation device is constructed as described above, it is necessary to set the reservation number, the channel number, day-of-the-week, recording start time and recording end time, successively. Thus, required procedure is very complicated and troublesome, and may lead to incorrect setting. Those who are not familiar with the apparatus may find it very difficult to accomplish the reservation for recording desired programs.

It is an object of the present invention to resolve above-mentioned problems and to provide a program reservation device that permits reservation for recording programs to be

accomplished easily without the need for remembering complicated operating procedure.

[Means for Resolving the Problems]

A program reservation device according to the present invention is comprised of a read only memory for generating a matrix form area to display a matrix form colored selection area consisting of at least a channel number frame and a time frame on a screen of a TV receiver connected to the main body of the device, a memory provided corresponding to each of said matrix form area in which the program reservation information is written, and control means which, when a desired area from among said colored selection area is designated, causes the area to be displayed in color, and content of the memory corresponding to this colored area to be read out.

[Operation]

In the present invention, when an area that is desired to be reserved for recording of a program is designated from among the matrix form colored selection area, the area is displayed in color so that one can at once recognize that it has been reserved, and the program reservation information is automatically read out from the memory corresponding to the colored area. Operation for program reservation is thereby greatly simplified.

[Detailed Description of the Preferred Embodiments]

The present invention will next be described in detail with reference to drawings showing embodiments thereof.

Fig. 1 is a general view showing a program reservation device according to an embodiment of the present invention. In Fig. 1, (1) is the main body of the device such as a VTR, (2) is a TV receiver connected to the main body (1) of the device, and (3) is a reception port provided in the main body (1) of the device for receiving a remote control device (107).

Fig. 2 is a block diagram showing essential parts of the device. In Fig. 2, (4) is a clock signal generator circuit, (5) is a synchronization signal generator circuit, (6) is a read only memory (hereinafter referred to as ROM) for genera

ting a matrix form colored selection area to be described later, (7) is a memory (hereinafter referred to as RAM) in which program reservation information corresponding to each of said matrix form area is written, (8) is a memory control circuit, (9) is a buffer connected to said memory (7) for reading out the content of the memory, (10) is a color signal generator circuit connected to said buffer (9), and (11) is a synthesis circuit connected to said memory (6) and color signal generator circuit (10). (12) is a controller such as a microcomputer that outputs the control signal for controlling reading of content of the memory, decoding, starting and ending of recording, and the like. (13) is a channel number selection key, (14) is a memory key, and (16) is a time frame selection key, each being connected to the memory control circuit (8).

On the screen (101) of the above-mentioned TV receiver (2), a matrix form colored selection area (15) consisting of a many number of channel number frames (15a) in the direction of horizontal axis as the number of presettable channels, for example channels 1 to 12, and time frames in the direction of vertical axis, for example time frames (15b) for each integer hour, as shown in Fig. 3, is displayed by above-mentioned ROM (6). In this example, the time frame (15b) for each integer hour is further divided into subframe (150b) for each 15 minutes.

Next, operation of the device constructed as described above will be described.

When, for example, the reservation screen view display button (108) is depressed, a matrix form colored selection area (15) as shown in Fig. 3 is displayed on the screen (101) of the TV receiver (2).

In the initial state of the above-mentioned screen (101), the smallest unit frame area (150a), e.g. for channel 1, from 5.00 to 5.15 am is displayed, for example, in red, and in blinking. This serves as a cursor. On the screen (101) constructed in this manner, the program that is desired to be recorded is reserved. First, channel number and the time zone of the program to be broadcast are read out from the TV and radio broadcasting program table on newspapers and magazines. If the program of channel number "4" in the time zone

from 6 h 00 to 6 h 30 is desired to be reserved for recording, the channel number selection key (13) is operated to move the cursor (150a) to the column of channel number "4". Then, the time frame selection key (16) is operated in the same manner to move the cursor (150a) vertically to successive time frame of 15 minutes until the time frame from 6 h 00 to 6 h 15 is reached, where the motion of the cursor is stopped and the memory key (14) is depressed. Upon depression of the memory key (14), the blinking is stopped and the frame is displayed in red. When the time frame selection key is then depressed, the red blinking cursor (150a) moves to the next frame from 6 h 15 to 6 h 30. Then, the memory key (14) is again depressed to stop the blinking. As a result, as shown in Fig. 2 (150c), the area of channel number "4" from 6 h 00 to 6 h 30 has been changed to red and program reservation has been completed.

Up to this point, program reservation is performed only on the screen (101) and not yet sufficient for the operation of control device of the VTR. But, since RAM (7) is provided corresponding to each of the matrix form area (15), every time said memory key (14) is depressed, the memory (7) corresponding to the area (150c) fixed to red color is changed, for example to the logical level "H". The information of the memory (7), namely, from what time to what time it goes to the logical level "H", can be read out by preparing a table of corresponding ROM (read only memory) (6) and referring to it.

Although, in the above described embodiment, a position of the colored selection area (15) is designated by moving a cursor (150a) on the screen (101) both in up-and-down direction and left-and-right direction, the operation may be further simplified by using a light-pen in place of the cursor to designate the position.

In the above described embodiment, all channel numbers and all programs from morning to night are displayed on one TV screen (101). But, programs may be displayed separately, for example in three parts for the morning, afternoon and night.

In the above described embodiment, distinction between the day-of-the-week, first week, second week, every day, or t

he like, is not shown. But, similar frame may be provided to show this distinction and may be designated by changing the display color of the desired area in the same manner as in the setting of channel number and time.

[Effect of the Invention]

According to the present invention as described before, a matrix form colored selection area consisting of at least a channel frame and a time frame is displayed on the screen of a TV receiver connected to the main body of the device, and if the desired area is designated, the color of the area is changed and, at the same time, the program reservation information in the memory corresponding to the area is read out. In this manner, program reservation can be easily accomplished without need for remembering the complicated operating procedure.

4. Brief Description of the Drawings

Fig. 1 is a general view showing a program reservation device according to an embodiment of the present invention. Fig. 2 is a block diagram showing essential parts of the program reservation device of Fig. 1. Fig. 3 is a view showing an exemplary screen display on the screen of a TV receiver used with the program reservation device of Fig. 1. Fig. 4 is a view showing an exemplary screen display on the screen of a TV receiver used with the conventional program reservation device. Fig. 5 is a plan view showing a remote control device used with the conventional program reservation device.

(1)---main body of the device, (2)---TV receiver, (6)---memory for generating a matrix form colored selection area, (7)---memory for storing program reservation information, (12)---control means (15)---matrix form colored selection area, (15a)---channel number frame, (15b)---time frame, (101)---screen view, (150c)---selected area.

In all Figures, same reference numeral denotes same or like parts.

English Translation of Kokai patent application 62-60372

Specification

1. Title of the Invention

Channel-Selection Programming Device for Television Receiver

2. Scope of Claim for a Patent

A channel-selection programming device for a television receiver, comprising:

program information memory means for storing information on television programs including broadcasting date/time data, broadcasting station data, and program name data;

means for displaying a television program list stored in the program information memory means, on the screen of a television receiver;

means for assigning an optional program based on a program list displayed by said means;

means for registering a program assigned by said means

;

a clock circuit; and

means for automatically selecting a channel of a registered program when a program broadcasting time has come, based on a comparison between the clock data of the clock circuit and the broadcasting date/time data of the registered program.

3. Detailed Description of the Invention

[Technical Field of the Invention]

The present invention relates to a channel-selection programming device for a television receiver capable of storing an optional television program and automatically selecting a channel according to the stored program.

[Prior Art and its Problems]

At present, television receivers have been distributed to almost all homes. Further, there has been a remarkable distribution of VTRs (video tape recorders) at the same time. These VTRs generally have a reserved recording function. For effecting this reserved recording operation, a time and

a channel are assigned, and the reservation of an optional television program can be set based on a program. In order to reserve a television program, it is necessary to confirm a desired television program as well as a television channel and a broadcasting date/time of this program by referring to a television program column on the paper or a television guide. This confirmation work has been very troublesome.

[Object of the Invention]

The present invention has been made in the light of the above aspect. It is an object of the present invention to provide a channel-selection programming device for a television receiver capable of automatically setting a program for reserving a desired television program in an easy manner by assigning the program from a list of television programs displayed on a television screen.

[Summary of the Invention]

According to the present invention, the channel-selection programming device has a program information memory unit for storing information on television programs including broadcasting date/time data, broadcasting station data, and program name data, and a clock circuit for counting the current date and time. This device makes a display of a television program list stored in the program information memory unit, on the screen of a television receiver. When an optional television program has been assigned out of programs displayed on the screen, the device registers this assigned program. Then, the device automatically selects a channel of the registered program when a program broadcasting time has come, based on a comparison between the clock data of the clock circuit and the broadcasting date/time data of the registered program.

[Embodiments of the Invention]

An embodiment of the present invention will be explained below with reference to the drawings. First, the total circuit structure will be explained with reference to Fig. 1.

In Fig. 1, 11 denotes a tuner which selects a broadcasting wave of a desired channel from television broadcasting waves induced in an antenna 10, according to an instruction of a television controller 12. The tuner converts this broadcasting wave into an intermediate frequency, and outputs this r

result to a TV circuit 13. The TV circuit 13 generates a tuning signal based on a television signal from the tuner 11, and outputs the tuning signal to the television controller 12.

At the same time, the TV circuit 13 amplifies the television signal, detects an image, divides the frequency, and detects sound, and then outputs the image signal to a CRT display 15 via a display switching circuit 14. The TV circuit 13 also outputs a sound signal from a speaker (not shown). A touch switch 16 is provided in front of the CRT display 15. A touch operation of the touch switch 16 is detected by a key sense circuit 17, and is sent to a CPU 16.

The CPU 18 is connected with a keyboard 19 that is equipped with various control keys, and a clock circuit 20 for measuring the current date and time. The CPU 18 is also connected with the television controller 12, the display switching circuit 14, a program memory 22 for storing television program information, an input unit 23 for inputting the television program information, a work memory 24, a display memory 25, a channel voltage generator circuit 26, a mouse 27, and a VTR controller 28, via a bus line 21 respectively. The channel voltage generator circuit 26 generates a channel voltage according to a channel assignment code from the CPU 18, and outputs this channel voltage to the television controller 12 and the VTR controller 28 respectively. The VTR controller 28 is connected with a VTR 29. A regeneration output A of the VTR 29 is input to the display switching circuit 14. The display switching circuit 14 selects an input signal according to a control command from the CPU 18, and outputs this signal to the CRT display 15.

The program memory 22 is for storing program information of one month, for example. An address area of the program memory is divided in a day unit, each being set with a header address (x address). Fig. 2 shows a structure of a part of the area of the program memory 22. As the program information, this area is set with a date, a channel, a day of the week, a starting time, an ending time, a kind of a program, an in-broadcasting flag F1 that shows that the program is currently being broadcast, a broadcasting end flag F2 that shows that the broadcasting of the program has ended, a television operation reservation flag F3 that shows a reservation of

a television operation, a VTR reservation flag F4 that shows a reservation of a VTR operation, and a program name. These pieces of program information are input from the input unit 23 shown in Fig. 1. As one example of input means, there is a method of inputting the information by using a bar code.

The operation of the above embodiment will be explained next. First, the input unit 23 reads program information of a one-week or one-month period that is printed in bar codes in the television guide, for example. This information is stored in the program memory 22 according to a control from the CPU 18. After the program information has been written into the program memory 22, an initial processing is executed according to a flowchart shown in Fig. 3.

As shown at step A1 in Fig. 3, the CPU 18 sets "1" (the header address) to an assignment address N of the program memory 22, and reads the contents of the assignment address N from the program memory 22 at step A2. At step A3, the CPU 18 compares the date of the program read from the program memory 22 with the current (present) date counted by the clock circuit 20. When the current date is larger than the program date, that is, when the program broadcasting date is yesterday or older and the broadcasting has already been over, the process proceeds to step A4. At step A4, the flag F2 is set, and then the process proceeds to step A6. When the current date coincides with the program date, the process proceeds from step A3 to step A5. At step A5, a decision is made whether the current time counted by the clock circuit 20 has already passed the program finishing time or not. When the current time has already passed the program finishing time, the process proceeds to step A4. Then, at step A4, the flag F2 is set. However, when the current time has not passed the program finishing time, the process proceeds from step A5 to step A6. Further, when a decision has been made at step A3 that the current date is smaller than the program date, that is, when the program has not yet been broadcast, the process proceeds straight to step A6. At step A6, a decision is made whether the assignment address N of the program memory 22 has reached the end address or not. When the assignment address N of the program memory 22 has not yet reached the end address, "+ 1" is set to the assignment address N at step A7

. Then, the process returns to step A2. Thereafter, a similar processing is carried out, and the program information is sequentially read from the program memory 22, thereby to make a decision whether the program broadcasting has been finished or not. When the program broadcasting has already been finished, the flag F2 is set. When the assignment address N of the program memory 22 has reached the end address, this state is detected at step A6. Then, the initial processing ends.

After the television program information has been stored in the program memory 22 and the initial processing has been finished in the manner as described above, it becomes possible to display a television program list on the CRT display 15 by manipulating the keys on the keyboard. Then, it is possible to set an optional television program based on the displayed program list. A television program setting operation will be explained below according to a flowchart shown in Fig. 4. First, at step B1, the date of a television program for which a program setting is desired is input from the keyboard 19. At the same time, the "program list" key for commanding the display of the television program list is manipulated. When the above key manipulation has been finished, the CPU 18 reads the data of the assigned date at step B2. At step B3, the CPU 18 generates a header address X and an end address X_{END} corresponding to the area of the assigned date in the program memory 22 based on the date data. Then, at step B4, the CPU 18 sets the header address X to the assignment address N in the program memory 22. At step B5, the CPU 18 reads the memory information of one television program from the program memory 22. Next, at step B6, the CPU 18 outputs the program information read from the program memory 22, to the work memory 24. Then, at step B7, the CPU 18 makes a decision as to whether the memory assignment address N has reached the end address X_{END} or not. When the memory assignment address N has not yet reached the end address X_{END} , the CPU 18 sets "+ 1" to the memory assignment address N at step B8. Then, the process returns to step B5. Thereafter, the CPU 18 repeats a similar operation, and reads the program information on the assigned date from the program memory 22, and outputs the read program to the work memory 24. When the m

emory assignment address N has reached the end address X_{END} , a result of the decision made at step B7 becomes YES. Then, the process proceeds to step B9. At step B9, the CPU 18 edits the program information output to the work memory 24 into a format that it is easy to read. Then, at step B10, the CPU 18 outputs an edit result to the display memory 25. A program list written into the display memory 25 is sent to the display switching circuit 14. In the program setting mode, the display switching circuit 14 has been changed over to the display memory 25 side by the control command from the CPU 18. Thus, the television program list stored in the display memory 25 is sent to the CRT display 15 and is displayed there. In this television program list, there are displayed, for example, a date, a day of the week, a channel, programs for the day and their broadcasting hours, and operation assignment items including "TV", "VTR", and "END", as shown in Fig. 5. The "TV" is a program channel selection mode for automatically selecting a channel of an assigned television program, and for displaying their pictures. The "VTR" is a reserved picture recording mode, and the "END" is an operation assignment item for instructing an end of the processing. The program list is also provided with manipulation marks M that show manipulation positions corresponding to the programs and operation assignment items. These manipulation marks M are displayed at positions corresponding to touch electrodes of the touch switch 16.

Then, a user first assigns the operation mode of the "TV" or the "VTR" by looking at the contents of the programs displayed on the CRT display 15. Next, the user selects a desired program by touch operation with a finger. This touch operation is detected by the touch switch 16 and the key sense circuit 17. A detection signal is sent to the CPU 18. At step B11 in Fig. 4, the CPU 18 detects a key sense signal sent from the key sense circuit 17, and makes a decision on the contents of this signal. When the key sense signal shows the TV mode, the process proceeds to step B12. When the key sense signal shows the "VTR" mode, the process proceeds to step B13. At each of these steps, a recognition processing of the assigned television program is carried out. When the program recognition processing has been finished at step B12,

the process proceeds to step B14. The CPU 18 sets the television reservation flag F3 of the program memory 22 at step B14. Then, the process returns to step B11, and the CPU 18 waits for the operation until the next key-touch input. When the program recognition processing has been finished at step B13, the process proceeds to step B15, and the CPU 18 sets the VTR reservation flag F4 of the program memory 22 at step B15. Then, the process returns to step B11, and the CPU 18 waits for the operation until the next key-touch input. Thereafter, a similar operation is carried out each time when a program reservation is conducted by the key-touch operation. Then, the television reservation flag F3 or the VTR reservation flag F4 is set to the program memory 22. After the program reservation operation has been finished, the user touches the "END" item on the television screen. This "END" item touch operation is detected at step B11. Thus, the program reservation processing is finished.

Following the above program reservation, the CPU 18 always compares the contents of the program memory 22 with the time-count data of the clock circuit 20. When the time for starting the broadcasting of the reserved program has come, the CPU 18 selects a channel of this program and further carries out a VTR recording operation. Details of this operation will be explained below according to a flowchart shown in Fig. 6. The clock circuit 20 is always counting the current time, and is supplying the current time information and the current date information to the CPU 18. At step C1 in Fig. 6, the CPU 18 is always detecting a one-minute pulse sent from the clock circuit 20. When the CPU 18 has detected a one-minute pulse, the CPU 18 reads the date data from the clock circuit 20 at step C2. Then, at step C3, the CPU 18 generates the header address X and the end address X_{END} corresponding to the date area of the program memory 22 according to the current date data read from the clock circuit 20. Then, at step C4, the CPU 18 sets the header address X to the assignment address N corresponding to the program memory. At step C5, the CPU 18 reads the contents stored in the program memory 22. At step C6, the CPU 18 makes a decision as to whether the broadcasting end flag F2 has been set or not. When the broadcasting end flag F2 has not been set, the process proceeds

ds to step C7. At C7, the CPU 18 makes a decision on a large /small relationship between the current time and the broadcasting starting time. When the current time has already passed the broadcasting starting time, the process proceeds to step C8. At step C8, the CPU 18 makes a decision as to whether the current time has reached the broadcasting ending time or not. When the current time has not yet reached the broadcasting ending time, that is, when the program is currently being broadcast, the process proceeds to step C9. Further, when a decision has been made at step C6 that the flag F2 has been set (the program broadcasting has been finished), the process proceeds to step C9. Also, when a decision has been made at step C7 that the current time has not reached the broadcasting starting time, the process proceeds to step C9.

At step C9, the CPU 18 makes a decision as to whether the memory assignment address N has reached the end address X_{END} or not. When the memory assignment address N has not yet reached the end address X_{END} , the CPU 18 sets "+ 1" to the memory assignment address N at step C10. Then, the process returns to step C5. When a decision has been made at step C9 that the memory assignment address N has reached the end address X_{END} , the process returns to step C1, where the CPU 18 waits for the operation until when the next one-minute pulse has been input.

On the other hand, when a decision has been made at step C7 that the current time has coincided with the broadcasting starting time, the process proceeds to step C11. At step C11, the CPU 18 makes a decision as to whether the television reservation flag F3 has been set or not. When the television reservation flag F3 has been set, the process proceeds to step C12, where the CPU 12 turns on the power source of the television. Next, at step C13, the CPU 18 outputs a channel code of the program read from the program memory 22, to the channel voltage generator circuit 26. The channel voltage generator circuit 26 generates a channel voltage corresponding to the channel code from the CPU 18, and outputs this channel voltage to the television controller 12. The television controller 12 controls the tuner 11 based on the channel voltage from the channel voltage generator circuit 26, and selects the assigned channel. A television signal of which

channel has been selected by the tuner 11 is processed by the TV circuit 13. Then, a video signal is extracted from the TV circuit 13, and is sent to the CRT display 15. The CRT display 15 displays this video signal. In the mean time, when the processing at step C13 has been finished, or when a decision has been made at step C11 that the television reservation flag F3 has not been set, the CPU 18 makes a decision at step C14 whether the VTR reservation flag F4 has been set or not. When the VTR reservation flag F4 has not been set, the CPU 18 sets the in-broadcasting flag F1 at step C18. Then, the process returns to step C9. However, when the VTR reservation flag F4 has been set, the process proceeds from step C14 to step C15. At step C15, the CPU 18 turns on the power source of the VTR 29. Then, at step C16, the CPU 18 makes the VTR controller 28 select the channel. Next, the CPU 18 gives a recording command to the VTR controller 28, and makes the recording operation of the VTR 29 started at step C17. Next, at step C18, the CPU 18 sets the in-broadcasting flag F1. Then, the process returns to step C9.

The automatic selection of a television channel and the automatic recording of the VTR are started in the manner as described above. Thereafter, when the program broadcasting ending time has reached, and also when a decision has been made at step C8 that the current time counted by the clock circuit 20 has coincided with the program broadcasting ending time, the process proceeds from step C8 to step C19. At step C19, the CPU 18 makes a decision as to whether the television reservation flag F3 has been set or not. When the television reservation flag F3 has been set, the process proceeds to step C12, where the CPU 18 turns off the power source of the television. Next, at step C21, the CPU 18 resets the television reservation flag F3, and the process proceeds to step C22. When a decision has been made at step C19 that the television reservation flag F3 has not been set, the process proceeds immediately to step C22. At step C22, a decision is made as to whether the VTR reservation flag F4 has been set or not. When the VTR reservation flag F4 has been set, the CPU 18 turns off the power source of the VTR 29 at step C23. At the same time, the CPU 18 resets the VTR reservation flag F4 at step C24. Then, the process proceeds to step C25. W

hen a decision has been made at step C22 that the VTR reservation flag F4 has not been set, the process immediately proceeds to step C25. At step C25, the CPU 18 resets the in-broadcasting flag F1. At the same time, the CPU 18 sets the broadcasting end flag F2 at step C26. Then, the process returns to step C9. The automatic channel selection processing and the automatic recording processing of a reserved television program are carried out in the manner as described above.

In the above embodiment, a method using a bar-code reader has been shown as means for storing television program information in the program memory 22. However, it is also possible to use other recording medium such as a memory pack, a cassette tape, an IC card or the like. Further, it is also possible to utilize a videotex to read television program information from the information center of this videotex and store this information into the program memory 22. When the whole program list cannot be displayed on the screen at one time, the program list may be displayed in scroll or by dividing the list into the next page.

[Effects of the Invention]

As detailed in the above, according to the present invention, the channel-selection programming device has a program information memory unit for storing information on television programs including broadcasting date/time data, broadcasting station data, and program name data, and a clock circuit for counting the current date and time. This device makes a display of a television program list stored in the program information memory unit, on the screen of a television receiver. When an optional program has been assigned based on programs displayed on the screen, the device registers this assigned program. Then, the device automatically selects a channel of the registered program when a program broadcasting time has come, based on a comparison between the clock data of the clock circuit and the broadcasting date/time data of the registered program. Based on this arrangement, it is possible to display a television program list on the screen of the television receiver and to confirm the contents of the programs, even when the paper carrying a program list is not available at hand. Furthermore, it is easily possible to set a program for reserving a television program by ass

igning a desired television program out of the displayed programs.

4. Brief Description of the Drawings

Drawings show one embodiment of the present invention.

Fig. 1 is a block diagram showing a circuit structure. Fig. 2 is a diagram showing an example of an information memory in a program memory. Fig. 3 is a flowchart showing an initial processing operation. Fig. 4 is a flowchart showing a television program reservation operation. Fig. 5 is a diagram showing a display example of a television program list. Fig. 6 is a flowchart showing the operation of automatically selecting a channel and automatically recording a reserved program respectively.

10 --- Antenna, 11 --- Tuner, 12 --- Television controller, 13 --- TV circuit, 14 --- Display switching circuit, 15 --- CRT display, 16 --- Touch switch, 17 --- Key sense circuit, 18 --- CPU, 19 --- Keyboard, 20 --- Clock circuit, 21 --- Bus line, 22 --- Program memory, 23 --- Input device, 24 --- Work memory, 25 --- Display memory, 26 --- Channel voltage generator circuit, 28 --- VTR controller, 29 --- VTR.